INDEX

TO

VOLUME LXXIX, 1984

AUTHOR INDEX

(A) indicates abstract; (P) patent; (R) review;
(BR) book review; and (TN) technical note.

ACETO, N. C. *See* KOMANOWSKY, M.

ADEWOYE, R. O., and R. M. LOLLAR. Use of Pulped Fruit of Adenopus Breviflorus (Tagiri) as an Unhairing Agent and Characterization of The Enzymes Extracted from the Fruit 446

AHMED, P., S. SADULLA, and M. OLIVANNAN. Nappa Leathers from E. I. Kips (A) 119

ALDER, C., K. P. CHAING, T. F. CHONG, E. COATES, A. A. KHALILI, and B. RIGG. Uniform Chromaticity Scales-New Experimental Data (A) 368

ALOY, M. *See* VULLIERMET, B.

ANDO, H., A. YAMAOKA, and S. OKADA. Identification of Some Leather Finishes by Infrared Spectrophotometry (A) 244

———, K. OKAMOTO. Easy Assessment Method for Average Peeling Strength of Finish Coat on Leather (A) 31

ANGELINETTI, R., C. CANTERA, M. J. SCHANG, O. AZCONA, M. F. BONINO and E. N. ERRECABORDE. Proteins Recovered from Unhairing Liquors: Utilization in Agrotechnology (A) 63

AOKI, H. *See* HEIDEMANN, E.

AUDET, N. F. *See* BAILEY, M.

AZCONA, O. *See* ANGELINETTI, R.

BABKIN, A. G. *See* MOTOV, D. L

BABU, N., A. BHASKARAN, M. OLIVANNAN, and S. RAJADURAI. Upgrading of Shoe Uppers by Polymeric Impregnants (A) 172

BABU, V. P. KRISHNIAH, K. DEV, and S. RAJADURAI. Retanning of Cow Uppers Using CLRI Acrylic Syntan (A) 122

Bailey, M., N. F. Audet, M. F. Demorais, S. Bernstein, Z. Kupferman, and K. Spindola. Evaluation of Flammability of Footwear Upper Materials: Patent and Regular Shoe Upper Leather Vs. Porvair and Clarino Poromerics 16
Balasubramanian, K. *See* Gunasekaran, A.
Bangaruswamy, S. *See* Swamy, M.
Bankmann, E., R., Hotz, C. Brandi, W. G. Sharples, H. Steuerle, M. Stoeri, and H. Weis. Ecological and Toxicological Assessment of Colorants - Analytical Aspects (A) 441
Basappa, A. *See* Khanna, J.
Basu, B. *See* Saha, A.
Bay, H., and F. Leppmeier. Influence of Lubricants With a Hydrophobic Component Upon the Fastness Properties of Leather Finishes (A). 64
Bellus, D. *See* De Sousa, B.
Belokoskov, V. I. *See* Motov, D. L.
Bernstein, S. *See* Bailey, M.
Berwick, W. *See* Landmann, A.
Bhaskaran, A. *See* Babu, N.
Biles, J. J., N. J. Dicandilo, and W. C. Prentiss. High Performance Acrylic Resins 34
Bolz, G. *See* Lach, D.
Bonino, M. F. *See* Angelinetti, R.
Boroyan, K. Present Status and Future Developments of the Technology of Leather Finishing (A) 284
Brandi, C. *See* Bankmann, E.
Broeders, J. L., H. H. A. Pelckmans, and P. J. Van Vlimmeren. Components of Non-Allergic Shoes and Manufacture of Non-Allergic Leather (A) 124
_____, H. H. A. Pelckmans. The Factors Influencing the Cementing of Soles (A) 173
Buechler, P. R. *See* Milligan, B.
_____, M. V. Hannigan, R. J. Carroll, M. P. Dahms, and S. H. Feairheller. Studies of Hyperkeratosis of Cattlehides Attributable to Psoroptic Scabies 416

Caffarelli, E. *See* Perrone, D.
Cantera, C. *See* Angelinetti, R.
Carroll, R. J. *See* Buechler, P. R.
Chaing, K. P. *See* Alder, C.
Chandrakasan, G. *See* Lata, A.
Chatterjea, J. *See* Lakshminarayana, Y.
_____, *See* Swamy, M.
_____, *See* Vijayalakshmi, K.

Chauhan, N. *See* Patel, J.
Chonan, Y. *See* Matsunaga, A.,
———, *See* Okamura, H.
———, *See* Shirai, K.
———, A. Matsunaga, and H. Toyoda. Swelling Property of Alkylamidated Collagen Fibers (A) 30
Chong, T. F. *See* Alder, C.
Cioca, G. Collagen Sponge (P) 238
Clarke, F. J. J., R. McDonald, and B. Rigg. Modification of the JPC79 Colour-Difference Formula (A) 414
Coates, E. *See* Alder, C.
Constabel, H. *See* Friese, H.-H.
Correard, R., and M. Payen. The All-Electric Tannery (A) 284
Covington, A. D., and R. L. Sykes. The Use of Aluminium Salts in Tanning 72
Cranston, R. W., M. H. Davis, and J. G. Scroggie. Progress Report on the New CSIRO Unhairing Process (A) 444

Dahms, M. P. *See* Buechler, P. R.
Dass, B., and K. Nigam. Shoe Fitting and Foot Comfort (A) 120
Davidson, R. S., D. King, P. A. Duffield, and D. M. Lewis. Photoacoustic Spectroscopy for the Study of the Adsorption of Dyes on Wool Fabrics (A) 288
Davis, M. H. *See* Cranston, R. W.
Demorais, M. F. *See* Bailey, M.
Dempsey, M. Hide, Skin and Leather Defects: A Guide to Their Microscopy (BR) 441
Dennis, D. A. The Status of Collagen as a Gras Ingredient 129
De Sousa, B., W. Schmidt, H. Hefti, and D. Bellus. A complete and Highly Effective Mothproofing Agent Comprising a Pyrethroid and a Hexahydropyrimidine (A) 392
Dev, K. *See* Babu, V.
Dey, J. Practical Aspects of the Manufacture of Upper Leather (A) 392
———, Practical Aspects of the Manufacture of Upper Leather (A) 393
Dhar, S. *See* Muthukumaran, N.
Dicandilo, N. J. *See* Biles, J. J.
Dick, G. *See* Gleinig, H.
Dietrich, H. Apparatus for the Parting of Hide Hair (P) 235
———, Feed Device Equipment for Letting Out Hides (P) 236
Domajnko, D. Practical Aspects of Leather Impregnation (A) 395
Dorstewitz, R. How Can Splitting Influence the Processing of Leather (A) 287
Duff, D. G. *See* Giles, C. H.

DUFFIELD, P. A. *See* DAVIDSON, R. S.
DURAIKANNU, A. *See* GHOSH, D.
DURAISWAMY, B. *See* KAMAT, D.
_____, *See* MUTHULINGHAM, P.
_____, D. KAMAT, V. RATHINASWAMY, and R. SELVARANGAN. Combination Tanned Football Leather Adopting Bag Tanning Technique (A) 173
_____, V. RATHINASAMY, and R. SELVARANGAN. Manufacture of Alum Tanned Army Upper Leather (A) 121
DUTTA, S. Synthetic Polymers for Finishing (A) 393
DUTTA S. Synthetic Polymers for Leather Finishing (A) 392

ECKERT, G. PUR dispersions in Leather Finishing (A) 123
ELSINGER, F. J. Modernization in the Chamois Tannery (A) 175
_____, *See* MUNZ, K. H.
ERRECABORDE, E. N. *See* ANGELINETTI, R.

FEAIRHELLER, S. H. *See* BUECHLER, P. R.
_____, *See* MILLIGAN, B.
FINK, D. J. *See* HUGHES, K. E.
FISCHER, W., and W. SCHMIDT. Moisture Content of Variously Conditioned Leather (A) 123
FISICHELLA, S., G. SCARALATA, and M. TORRE. Correlation Between R and Standard Affinity of Some Anionic Azo Dyes on Cellulose (A) 69
FRANKEL, F., and D. RABINOVICH. A semistatistical Method for Describing Mass-Area Relationships in the Production of Lime Split, Chrome Tanned Side Leather (A) 122
FRIESE, H.-H., H. CONSTABEL, and W. PRINZ. Upper Leather With Improved Water Resistance (A) 125
_____, W. PRINZ, and E. RUSCHEINSKY. Employment of Sodium Aluminum Silicates in Leather Manufacture (A) 126
_____, and W. NISI. Enzymatic Soak for Fur Skins (A) 124
FUCHS, K. The Use of Hydrotropic Substances in the Manufacture of Reptile Leather (A) 124

GAUGLHOFER, J. *See* VON ROTZ, A.
GAVEND, G., and MERONET. How to Determine and to Improve the Fire Resistance of Leather (A) 284
GERASIMOVA, L. G. *See* MOTOV, D. L.
GHOSH, D., A. DURAIKANNU, K. THAMPURAN, G. RAMAMURTHY, and M. SANTAPPA. Partial Substitution of Wattle in E.I. Tanning, Using a New Process (A) 394
GHOSH, S. *See* KHANNA, J.

GILES, C. H., D. G. DUFF, and R. S. SINCLAIR. The Relationship Between Dye Structure and Fastness Properties (A) 288
GLANVILLE, R. *See* NEDKOV, P.
GLEINIG, H., H.-H. MOLLS, J. KOLL, G. DICK, R. HORNLE, AND F. KUNERT. Leather Dyeing Agents and Their Preparation: Membrane Separation of Dye Mother Liquor (P) 234
GODNEVA, M. M. *See* MOTOV, D. L.
GOSHEV, I. *See* NEDKOV, P.
GRAMMEL, J. *See* PEDAIN, J.
GREGORZEWSKA, U., and J. STANIEWSKA. Alkaline Aluminum Silicates Improve Chrome Exhaustion in Tan Liquors (A) 412
GRENIER, Y. Appliance Designed for the Treatment, Particularly in a Liquid, of a Product Like Leather and Procedure for Applying This Appliance (P) 177
GUNASEKARAN, A., K. BALASUBRAMANIAN, V. RAO, and T. VIJAYARAMAYYA. Studies on Synthetic Tannins: Preparation of Oxazolidines (A) 395
GUPTA, K. *See* KAMAT, D.
———, *See* KHANNA, J.

HAINES, B. M. Quality Rawstock 319
HAMBU, T. *See* MATSUI, M.
HANNIGAN, M. V. *See* BUECHLER, P. R.
HEFTI, H. *See* DE SOUSA, B.
HEIDEMANN, E. Theoretical Basis for the Hydrophobation of Leather (A) .. 32
———, *See* RENTERIA, R.
———, *See* SATO, K.
———, *See* ZHIGIANG, V. L.
———, H. AOKI, E. SAGALA, and J. SAGALA. Experiences with Sulfide Oxidation in Dehairing Liquors (A) 287
———, J. SAGALA, and A. HEIN. Report About a New Conception of the Run-Through Process (A) 287
———, and H. AOKI. The Mechanism of Making Leather Hydrophobic (A) 413
———, and J. SMIDEK. Degreasing of Pickled Sheepskin in an Aqueous Medium (A) 285
HEILAND, W. K. *See* O'BRIEN, D. J.
HEIN, A. *See* HEIDEMANN, E.
HENRICKSON, R. L., H. TURGUT, and B. R. RAO. Hide Protein as a Food Additive 132
HERFELD, H. Automatic Control of Wet Processes in Rotating Vessels (A) . 174
HERFELD, H. P. *See* PAUCKNER, W.
———, and W. PAUCKNER. Improvement of Leather Properties by Im-

pregnation with Polyurethane (PUR) Dispersions (A) 122
HERNANDEZ, J. F., and W. E. KALLENBERGER. Combination Tannages with Vegetable Tannins and Aluminum 182
HEYER, J. Influence of Resins on Retannage: Possible Applications (A) ... 284
HILLION, J. Accounting for Losses in the Conversion of Hides Into Leather (A) 63
HILZINGER, E. *See* WACHSMANN, H.
HITZ, H. R., W. HUBER, and R. H. REED. Publication Sponsored by ETAD. The Adsorption of Dyes on Activated Sludge (A) 70
HODDER, J. J., W. C., PRENTISS, and G. J. WARD. Practical Leather Processing Using the Novel Pretan Concept II. Results of Tannery Trails on Side Upper Leather 6
HORNLE, R. *See* GLEINIG, H.
HOTZ, R. *See* BANKMANN, E.
HOZAN, D. *See* YURA, Y.
HOZAN, T. *See* KAWASAKI, M.
HUBER, W. *See* HITZ, H. R.
HUGHES, K. E., D. J. FINK, T. B. HUTSON, and A. VEIS. Oriented Fibrillar Collagen and Its Application to Biomedical Devices 146
HUTSON, T. B. *See* HUGHES, K. E.

ISHI, Y. *See* KUBO, T.
ISHIHARA, N. *See* YURA, Y.
ITO, K., K. SHIRAI, and K. WADA. Comparison of Retanning Agents on the Binding Potency to Hide and the Suppression Effect on the Acid Swelling (A) 65
_____, S. NAKAGAWA, and K. SHIRAI. Thin Layer Chromatography of Commercial Retanning Agents (A) 68

JACOBS, M. E. Composition and Process for Producing Pigmentation in Hair or Skin (P) 179
JAYARAMAN, K. *See* KAMAT, D.
_____, *See* RANGANAYAKI, M.
_____, *See* VIJAYALAKSHMI, K.
_____, S. RAMALINGAM, N. SAMIVELU, and V. RATHINASWAMY. Semichrome Suede Leather-A New Approach for Better Nap and Improved Dyeing (A) 240
JOHN, G. Influence of Fatliquor Components Upon Finish Adehesion (A) . 126
JONCZYK, W., and K. STUDNIARSKI. About the Effect of Pancreatic Enzymes on Hide (A) 64
JOSEPH, K. T. *See* LAKSHMINARAYANA, Y.

KALLENBERGER, W. E. Halophilic Bacteria in Brine Curing 104
———, *See* HERNANDEZ, J. F.
KAMALAKKANNAN, V., S. SIDDARTHAN, M. OLIVANNAN, and S. RAJADURAI. Modified Chlorinated Rubber Finishes as Top Coat for Football Leathers (A) 239
KAMAT, D. *See* DURAISWAMY, B.
———, B. DURAISWAMY, S. KRISHNAN, and R. SELVARANGAN. Studies on Bag Tanning: Effect of Pretanning on Properties of Bag Tanned Leather (A) 121
———, P. RAO, K. GUPTA, and K. JAYARAMAN. Tooling Leathers (A).... 67
———, *See* KHANNA, J.
KAWASAKI, M. *See* SUGITA, M.
———, K. UEHARA, T. HOZAN, and Y. NIWA. Effects of the Combination Uses of Retanning Agents on the Properties of Different Types of Retanned Chrome Leathers (A) 243
KHALILI, A. A. *See* ALDER, C.
KHANNA, J. Fur Tanning of Exotic Sheep for Garments (A) 241
———, Upholstery Leathers from Flour Tanned Sheep Skins (A)..... 393
———, *See* SELVARANGAN, R.
———, D. KAMAT, K. GUPTA, and A. BASAPPA. Clothing Leathers from Low Grade Skins (A) 120
———, S. GHOSH, P. MUTHULINGHAM, and R. SELVARANGAN. Shrunken Shoe Upper from Bag Tanned Cow Hides (A)..... 172
———, S. GHOSH, and R. SELVARANGAN. Suede Volley Ball Leather from Bag Tanned Splits (A) 443
———, and S. GHOSH. Football and Skeleton Leg Guard Leathers from Bag Tanned Split Leathers (A) 240
KIMURA, S. Molecular Species of Collagen (A)..... 170
KIMURA, T. *See* MATSUI, M.
KING, D. *See* DAVIDSON, R. S.
KITAO, T. *See* KURAMATO, N.
KOLESNIKOVA, N. I. *See* MOTOV, D. L.
KOLL, J. *See* GLEINIG, H.
KOMANOWSKY, M. *See* O'BRIEN, D. J.
———, G. E. SENSKE, N. C. ACETO, and H. I. SINNAMON. Recovery of Sulfide from Tannery Effluents 252
KONDO, K., M. SUNAHARA, and T. OTSUGI. Removal Methods of Cuticle from Wool Fiber (A)..... 67
KRAMER, H. E. A., *See* REMBOLD, M. W.
KRISHNAMURTHY, V. *See* PRASAD, B.
———, *See* UMA, L.
KRISHNAN, S. *See* KAMAT, D.
KRISHNIAH, P. *See* BABU, V.

KUBO, T., Y. ISHI, M. SUGITA, and K. WADA. Fundamental Studies on the Retanning Effect of Typical Retanning Agents (A) 170
KUHN, K. *See* NEDKOV, P.
KULASEKARAN, S. *See* SELVARANGAN, R.
KUMAR, R., and K. NIGAM. Application of Polymers in Leather Finishing (A) 392
KUNERT, F. *See* GLEINIG, H.
KUPFERMAN, Z. *See* BAILEY, M.
KURAMATO, N., and T. KITAO. Contribution of Singlet Oxygen to the Photofading of Some Dyes (A) 69

LACH, D. Tanning Agent, Its Preparation and Its Use For Retanning (P) . 232
_____, K. LASSEN, and R. STREICHER. Clean Hides - Are They Still a Problem? (A) 174
_____, R. STREICHER, and G. BOLZ. Preparation of Water-Soluble or Self-Dispersing Resin Tanning Agents (P) 234
LAKSHMINARAYANA, Y., C. R. REDDY, K. PARTHASARATHY, and K. T. JOSEPH. Casein-Acrylic Graft Copolymers as Glaze Finishes for Leather 398
_____, C. REDDY, J. CHATTERJEA, and K. JOSEPH. Acrylonitrile Co-Styrene and Acrylonitrile Co-nBMA Graft Copolymers Onto Casein, Part I (A) 241
_____, C. REDDY, and J. CHATTERJEA. Acrylonitrile - CO - Styrene and Acrylonitrile - CO - Butyl Methacrylate Graft Copolymers Onto Casein - Part II (A) 394
LANDMANN, A., and W. BERWICK. The Detection of Sperm Oil in Leather and Oil Mixtures (A) 392
LARSSON, A. A Method for Estimating the Area Yield Obtainable with New Tannages and Post-Treatments (A) 414
LASSEN, K. *See* LACH, D.
LATA, A., and G. CHANDRAKASAN. Topical Application of BAPN on S. C. Induced PVA-Granulomas (A) 243
LATHA, W. M., V. S. S. RAO, K. K. REDDY, and K. N. S. SASTRY. Studies on the Chemistry of Syntans: Part I: Mixed Condensation Products 246
LEPPMEIER, F. *See* BAY, H.
LEWIS, D. M. *See* DAVIDSON, R. S.
LODH, N. Machinery for Leather Industry (A) 67
LOLLAR, R. M. *See* ADEWOYE, R. O.
LUCCHESE, F. A., C. M. PETRY, O. J. SCHEFFEL, and D. R. MACHADO. Influence of Drying and Softening Methods Upon the Area Yield Obtained in the Chrome Tanning of Cattle Hide (A) 32
LUCK, L., and F. SCHADE. New Syntans and Their Application (A) 124

MACHADO, D. R. *See* LUCCHESE, F. A.
MADHAVAKRISHNA, W. *See* PRASAD, B.
———, *See* RAJAMANI, S.
———, *See* SEKARAN, G.
MADHUSUDANAMMA, W., V. RAO, T. VIJAYARAMAYYA, K. REDDY, and K. SASTRY. Studies on Sal (Shorea Robusta) Seeds: Part III. Extraction of Tannins from Deoiled Sal Seeds (A) 242
MAEDA, S. *See* YURA, Y.
MAHADEVAN, A. *See* MUTHUKUMAR, G.
MALTAN, K. E., How Allergic Patients Who Cannot Wear Ordinary Shoes, Can Walk Without Trouble (A) 123
MANN, R., and P. ZERVOS. Thickness of Leather Causing an Error on Measuring Machines (A) 63
MARBUS, J. C. Advantages of an Objective and Accurate Sorting Control Combined with a Data Analysis System (A) 239
MARGOLD, F. Process for Disinfecting and Preserving Hides and Skins (P). 176
MARTINELLI, B. *See* WACHSMANN, H.
MATSUI, M., T. KIMURA, T. HAMBU, K. SHIBATA, and Y. TAKESE. Reaction of Water-Soluble Dyes with Ozone (A) 441
MATSUNAGA, A. *See* CHONAN, Y.
———, Y. CHONAN, and H. TOYODA. Solubilization of Human Hair Keratin by Reduction with 2-Mercaptoethanol (A) 30
MAY, M., R. MONSHEIMER, and E. PFLEIDERER. Tanning Method (P) 233
MERONET, R. *See* GAVEND, G.
METELKIN, A. I. *See* MOTOV, D. L.
MICHALIK, J. Leather Splitting Machine (P) 177
MIKAELIAN, I. I. *See* MOTOV, D. L.
MILLIGAN, B., P. R. BUECHLER, and S. H. FEAIRHELLER. Dicarbamoylsulfonate Tanning Agent (P) 238
MIZUTANI, M. *See* MOHRI, N.
MOHRI, N., M. MIZUTANI, and S. OKADA. Application of the Quadratic Approximation to the Stratigraphical Chrome Distribution (A)... 442
MOLLS, H.-H. *See* GLEINIG, H.
MONSHEIMER, R. *See* MAY, M.
MOTOV, D. L., L. P. TJURKINA, L. G. GERASIMOVA, A. I. METELKIN, I. G. SHIFRIN, N. I. KOLESNIKOVA, G. G. YAKUSHEVA, M. M. GODNEVA, A. G. BABKIN, I. I. MIKAELIAN, V. I. BELOKOSKOV, and V. P. PLOTNIKOV. Method for Preparing Titanium Tanning Agent and Use Thereof in Leather Tanning Process (P) 232
MOUCKA, L. The Wattle Aluminum Tannage (A) 444
MUNZ, K. H., and F. J. ELSINGER. The Examination of Shoe Polishes (A) . 413
MURALIDHARAN, R. Small Leathergoods (A) 67
MURALIMANOHAR, Y. *See* MUTHULINGHAM, P.

MUTHUKUMAR, G., and A. MAHADEVAN. Effect of Tannins on Rhizobium SP and on Nodulation and Yield of Groundnut (Arachis Hypogaea) (A) 241
MUTHUKUMARAN, N., and S. DHAR. Purification and Characterization of Rhizopus Nodosus Acid Lipase (A) 66
_____, and S. DHAR. Substrate Specificity of Rhizopus Nodosus Acid Lipase (A) 240
_____, and S. DHAR. Studies on Glyceride Synthese by Rhizopus Nodosus Acid Lipase (A) 121
MUTHULINGHAM, P. *See* KHANNA, J.
_____, B. DURAISWAMY, Y. MURALIMANOHAR, and R. SELVARANGAN. Alternative Technology for Goat Upper Leather (A) 119
McDONALD, R.. *See* CLARKE, F. J. J.
McKAY, G., M. S. OTTERBURN, and A. G. SWEENEY. The Removal of Colour from Effluent Using Various Adsorbents: Some Preliminary Economic Considerations (A) 119

NAKAGAWA, S. *See* ITO, K.
NANDY, S. C. *See* SUSEELA, K.
_____, and M. SIVAPARVATHI. The Release of Skin Proteases During Curing and Preservation of Skins (A) 394
NAYUDAMMA, Y. *See* SUSEELA, K.
_____, *See* SWAMY, M.
NDUJI, A., and S. OKWUTE. Studies on Marke (Anogeissus Schimperii): Part III. Isolation of Gentisic, Protocatechuic and Gallic Acids from Marke Leaves (A) 242
NEDKOV, P., R. GLANVILLE, I. GOSHEV, and K. KUHN. Isolation and Partial Characterization of Sheepskin Collagen Dissolved by Subtilisin DY (A) 174
NIGAM, K. *See* DASS, B.
_____, *See* KUMAR, R.
NISI, W. *See* FRIESE, H.-H.
NIWA, Y. *See* KAWASAKI, M.
_____, *See* OKAMURA, H.
NOROY, T. Apparatus for Pulling-off the Skin of Sheep Carcasses in Slaughtering (P) 178
NOWAK, R., and R. WINKLER. New Trends in the Fatliquoring of Leather (A) 175

O'BRIEN, D. J., M. KOMANOWSKY, G. E. SENSKE, and W. K. HEILAND. Continuous Automatic Beamhouse Processing III. Effects of Processing Conditions on the Rapid Soaking and Unhairing of Cattlehides 370

Ohsugi, T. *See* Kondo, K.
Okada, S. *See* Ando, H.
———, *See* Mohri, N.
———, *See* Sugita, M.
Okamoto, K. *See* Ando, H.
Okamura, H. *See* Shirayama, T.
———, K. Shirai, Y. Chonan, and Y. Niwa. Retanning Effects on Wet Blues by the Single Application of Retanning Agents and Their Assortment (A) 170
———, and N. Tanaka. Effect of Retannage on the Mechanical Properties of Chrome Collagen Fibers (A) 171
Okwute, S. *See* Nduji, A.
Olivannan, M. *See* Ahmed, P.
———, *See* Babu, N.
———, *See* Kamalakkannan, V.
Orus, R. Striking the Material and Cost Balance Between Splitting in the Lime and in the Blue (A) 173
Ota, M. *See* Taniguchi, T.
Otterburn, M. S. *See* McKay, G.

Park, J. and J. Shore. Evaluation and Testing of Dyes Before Use in Textile Dyeing (A) 368
Parthasarathy, K. *See* Lakshminarayana, Y.
———, *See* Prasad, B.
———, and R. Selvarangan. Aniline Goat Upper from E. I. Goat Skins (A) 67
———, and R. Selvarangan. Zug Grain Leathers (A) 241
———, and R. Selvarangan. Wet White Leather (A) 121
———, M. Rao, and R. Selvarangan. Upper Leathers from Alum Wet White Goat Skins (A) 243
Patel, J., N. Chauhan, and B. Singh. Nappa Leather from Papda Sheep Skins of Saurashtra Region (A) 241
Patrone, A. *See* Perrone, D.
Pauckner, W. *See* Herfeld, H. P.
———, *See* Wolff, J.
———, and H. P. Herfeld. Investigations Concerning a Method Suitable for Measuring Pickled Pelts and Wet-Blues (A) 412
Payen, M. *See* Correard, R.
Pedain, J., W. Thoma, J. Grammel, and W. Schroer. Coating and Dressing Agents for Leather and Leather Substitutes Based on Polyurethane Urea Coating Compounds (P) 233
Pelckmans, H. H. A. *See* Broeders, J. L.

PERRONE, D., A. PATRONE, and E. CAFFARELLI. Continuous Process for the Removal of Chromium From Waste Waters and Valorization of the Recovered Chromium (P) 233
PETRY, C. M. *See* LUCCHESE, F. A.
PFLEIDERER, E. Optimal Conditions for Degreasing of Hides, Pickled Stock and Wet Blues in an Aqueous Medium (A) 286
_____, *See* MAY, N.
PLOTNIKOV, V. P., *See* MOTOV, D. L.
POHLENZ, J. F. L. *See* VON ROTZ, A.
PRASAD, B., K. SHANMUGASUNDARAM, K. PARTHASARATHY, V. KRISHNAMURTHY, W. MADHAVAKRISHNA, and R. SELVARANGAN. Studies on the Characterization and Treatment of Waste Water Produced During Process Modification for Pollution Reduction in Tanning Industry - Part I. (A)..... 172
PRATHIBHA, V. *See* SWAMY, M.
PRENTISS, W. C. *See* BILES, J. J.
_____, *See* Hodder, J. J.
PRINZ, W. *See* FRIESE, H.-H.

RABINOVICH, D. *See* FRANKEL, F.
RAGHUNATH, K. *See* VIJAYAKUMAR, M.
RAINA, R. *See* WALI, B.
RAJADURAI, S. *See* BABU, V.
_____, *See* KAMALAKKANNAN, V.
RAJAMANI, S., and W. MADHAVAKRISHNA. Tannery Effluent Treatment by Activated Sludge Process (A)..... 239
RAMALINGAM, S. *See* JAYARAMAN, K.
RAMAMURTHY, G. *See* GHOSH, D.
RANC, G. Study on a Calfskin Attacked by Mange Caused by Chorioptes (A)..... 284
RANGANATHAN, T. *See* RANGANAYAKI, M.
RANGANAYAKI, M., K. SCARIA, K. JAYARAMAN, and T. RANGANATHAN. Collagen Products in Cosmetics (A)..... 393
RANGASAMY, R. *See* SELVARANGAN, R.
RAO, A. *See* REDDY, P.
RAO, B. R. *See* HENRICKSON, R. L.
RAO, C. *See* VENKATABOOPATHY, K.
RAO, J. *See* SWAMY, M.
RAO, M. *See* PARTHASARATHY, K.
_____, *See* VENKATABOOPATHY, K.
RAO, N. *See* SASTRY, T.
RAO, P. *See* KAMAT, D.

RAO, V. S. S. *See* LATHA, W. M.
RAO, V. *See* GUNASEKARAN, A.
———, *See* MADHUSUDANAMMA, W.
———, *See* VENKATABOOPATHY, K.
———, *See* VIJAYALAKSHMI, K.
RATHINASWAMY, V. *See* DURAISWAMY, B.
———, *See* JAYARAMAN, K.
REDDY, C. *See* LAKSHMINARAYANA, Y.
REDDY, C. R., *See* LAKSHMINARAYANA, Y.
REDDY, K. K. *See* LATHA, W. M.
REDDY, K. *See* MADHUSUDANAMMA, W.
———, *See* VENKATABOOPATHY, K.
REDDY, P., and A. RAO. Preliminary Study of Lactate Dehydrogenase of Sillago Sihama (A) 240
REDDY, R. *See* VIJAYAKUMAR, M
REED, R. H. *See* HITZ, H. R.
REGO, O. S. Process for Tanning Fish Skins (P) 176
REICH, G. Modern Aspects of Upgrading Pigskin (A) 175
REMBOLD, M. W., and H. E. A. KRAMER. Singlet Oxygen as an Intermediate in The Catalytic Fading of Dye Mixtures (A) 68
RENTERIA, R. *See* ZHIGIANG, V.L.
———, and E. HEIDEMANN. About the Tension Caused by the Drying of Leather. II. Influence of Technological Factors (A) 369
RHYS, G. Adsorption on Activated Carbon: A Solution to Dye Waste Problems (A) 70
RIGG, B. *See* ALDER, C.
———, *See* CLARKE, F. J. J.
ROETS, S. The Development of a Simplified Flotation System for the Treatment of Tannery Wastes 297
RUSCHEINSKY, E. *See* FRIESE, H.-H.

SADULLA, S. *See* AHMED, P.
SAGALA, E. *See* HEIDEMANN, E.
SAGALA, J. *See* HEIDEMANN, E.
SAHA, A., S. SARKAR, and B. BASU. Semi-Chrome Dust Seal Leather Using Bag Tanned Sole Leather (A) 120
SAMIVELU, N. *See* JAYARAMAN, K.
SAMMARCO, U. Influence of the Electric Charge of Leather In the Process of Fat-Liquoring 351
SANCHEZ, I. O. Apparatus for Bending Cuts for Manufacturing Goods of Leather or Synthetical Materials (P) 231
SANTAPPA, M. *See* GHOSH, D.

SANTHANAKRISHNAN, G. Market Potential of Shark Hides and Its Export Prospects from India (A) 119
SARKAR, S. *See* SAHA, A.
SASSAHARA, H. *See* TANIGUCHI, T.
SASTRY, K. N. S. *See* LATHA, W. M.
SASTRY, K. *See* MADHUSUDANAMMA, W.
SASTRY, T., N. RAO, and K. SCARIA. Studies on the Proximal Analysis of Ruminal Contents (A) 119
SATO, K., R. UHLIG, L. TONIGOLD, and E. HEIDEMANN. Finishing of Full-Grain Leather Capable of High Water Absorption (A) 173
SCARALATA, G. *See* FISICHELLA, S.
SCARIA, K. *See* RANGANAYAKI, M.
———, *See* SASTRY, T.
SCHADE, F. *See* LUCK, L.
SCHANG, M. J. *See* ANGELINETTI, R.
SCHEFFEL, O. J. *See* LUCCHESE, F. A.
SCHMIDT, W. *See* DE SOUSA, B.
———, *See* FISCHER, W.
SCHNEIDER, E. *See* TOTH, G.
SCHOENE, A. Influence of Retannage and Dye Selection on Color Intensity, Shade and Brightness of Dyed Leather (A) 175
SCHROER, W. *See* PEDAIN, J.
SCROGGIE, J. G. *See* CRANSTON, R. W.
SEKARAN, G., V. VIJAYARAGHAVAN, and W. MADHAVAKRISHNA. Regeneration of Activated Carbon (A) 239
SELVARANGAN, R. *See* DURAISWAMY, B.
———, *See* KAMAT, D.
———, *See* KHANNA, J.
———, *See* MUTHULINGHAM, P.
———, *See* PARTHASARATHY, K.
———, *See* PRASAD, B.
———, S. KULASEKARAN, and R. RANGASAMY. Studies on Reconstitution of Chrome Liquors from Chrome Shavings and Other Waste Liquors from Chrome Tanning (A) 121
———, and J. KHANNA. Environmental Friendly Retanning and Finishing for Upgrading E.I. Skins (A) 120
SENSKE, G. E. *See* KOMANOWSKY, M.
———, *See* O'BRIEN, D. J.
SHANMUGASUNDARAM, K. *See* PRASAD, B.
SHARPLES, W. G. *See* BANKMANN, E.
SHIBATA, K. *See* MATSUI, M.
SHIFRIN, I. G. *See* MOTOV, D.L.
SHIRAI, K. *See* ITO, K.

———, *See* OKAMURA, H.
———, Y. CHONAN, and K. WADA. Gel Chromatography of Retanning Agents and Reactivity of Their Fractions to Chrome Leather (A) 64
———, and K. WADA. The Structure of Pigskin Collagen (A) 412
SHIRAYAMA, T., K. UEHARA, and H. OKAMURA. A Comparison of Affinity of Various Retanning Agents for Collagen Fibers and Chromed-collagen Fibers (A) 67
SHIVAS, S. A. J. The Effects of Trivalent Chromium from Tannery Wastes on Earthworms Part II 207
SHORE, J. *See* PARK, J.
SIDDARTHAN, S. *See* KAMALAKKANNAN, V.
SINCLAIR, R. S. *See* GILES, C. H.
SINGH, B. *See* PATEL, J.
SINGH, C. *See* WALI, B.
SINNAMON, H. I. *See* KOMANOWSKY, M.
SIVAPARVATHI, M. *See* NANDY, S.
———, *See* SUSEELA, K.
SMIDEK, J. *See* HEIDEMANN, E.
SMITH, R. A. Alum-Based Hide Processing 94
SOMMERHALDER, R. *See* STAKELBECK, H.-P.
SPINDOLA, K. *See* BAILEY, M.
STAKELBECK, H-P., and R. SOMMERHALDER. Method of Producing Multi-Colored Dyeings (P) 235
STANIEWSKA, J. *See* GREGORZEWSKA, U.
STEUERLE, H. *See* BANKMANN, E.
STOERI, M. *See* BANKMANN, E.
STREICHER, R. *See* LACH, D.
STUDNIARSKI, K. *See* JONCZYK, W.
SUGITA, M. *See* KUBO, T.
———, S. OKADA, and M. KAWASAKI. Effects of Retanning of Wet Blues on the Dyeing Property and Light Fastness of Chrome Leather (A) 441
SUNAHARA, M. *See* KONDO, K.
SUSEELA, K., M. SIVAPARVATHI, S. C. NANDY, and Y. NAYUDAMMA. Hydrolysis of Chrome Shavings by Penicillin SPS (A) 125
SUTOH, M. *See* UEHARA, K.
SWAMY, M., S. BANGARUSWAMY, J. CHATTERJEA, and J. RAO. Studies on the Masking Effect of Anions with Titanium Sulphate Solutions (Alone and Basified)-Part II (A) 393
———, S. BANGARUSWAMY, J. CHATTERJEA, and J. RAO. The Chemistry and Technology of Titanium in Leather Science-A Review and Further Prospects. Part I. (A) 242

———, V. Prathibha, Y. Teresa, and Y. Nayudamma. Effects of Chromium III (Basic Chromium Sulfate) on the Germination of Phaseolus Mungo L. (A) 172
Sweeney, A. G. *See* McKay, G.
Sykes, R. L. *See* Covington, A.D.

Takenouchi, K. Changes in Structure of Masked Chromium Complexes by Alkali (A) 30
Takese, Y. *See* Matsui, M.
Tanaka, N. *See* Okamura, H.
Taniguchi, T., I. Yashima, M. Ota, and H. Sassahara. Method for Removal of Fungi Formed on Hides (P) 176
Teresa, Y. *See* Swamy, M.
Thampuran, K. *See* Ghosh, D.
Thoma, W. *See* Pedain, J.
Tjurkina, L. P. *See* Motov, D. L.
Tonigold, L. *See* Sato, K.
Torre, M. *See* Fisichella, S.
Toth, G. and E. Schneider. Fixation and Speed of penetration in Chrome Tanning (A) 444
———, and E. Schneider. The Relationship Between Chrome Take-Up and Speed of Diffusion of Chrome Liquors (A) 174
Toyoda, H. *See* Chonan, Y.
———, *See* Matsunaga, A.
———, *See* Uehara, K.
Trutschel, W. Machine for Treating Hides or the Like (P) 180
Turgut, H. *See* Henrickson, R. L.

Uehara, K., M. Sutoh, and H. Toyoda. Electron Microscope Study of Leather I. Effect of Fixing and Staining on the Band Pattern of Collagen Fibrils 45
———, *See* Kawasaki, M.
———, *See* Shirayama, T.
Uhlig, R. *See* Sato, K.
Uma, L., and V. Krishnamurthy. Metal Oxinates for Leather Preservation (A) 443

Vaeck, S. V. An Improved Colour-Difference Formula for Use in Light-Fastness Testing (A) 69
Vallotton, A. Surfactants in Leather Manufacture (A) 31
Van Vlimmeren, P. J. see Broeders, J. L.
Veis, A. *See* Hughes, K. E.

VENKATABOOPATHY, K., K. REDDY, and C. RAO. Studies on Myrobalan-Naphthalene Syntan Tanning System, Part IV: Combination Tannages with Chromium (A) 120
_____, M. RAO, V. RAO, and T. VIJAYARAMAYYA. Studies on Modifications of Vegetable Tannins: Modified Ghat-Bor Extract as Retanning Agent (A) 121
VENKATACHALAM, P. Tanning, Dyeing and Finishing in the Post-War Decades (A) 67
VIJAYAKUMAR, M., K. RAGHUNATH, and R. REDDY. Alginic Acid - Poly (Glycidyl Methacrylate) Graft Copolymer - A Thermal Study (A). 443
VIJAYALAKSHMI, K., K. JAYARAMAN, V. RAO, and J. CHATTERJEA. Studies on Complexing Lubricants - Part I (A) 442
VIJAYARAGHAVAN, V. *See* SEKARAN, G.
VIJAYARAMAYYA, T. *See* GUNASEKARAN, A.
_____, *See* MADHUSUDANAMMA, W.
_____, *See* VENKATABOOPATHY, K.
VON ROTZ, A., J. GAUGLHOFER, and J. F. L. POHLENZ. Investigations About the Origin of Stippen on Cattlehide (A) 126
VULLIERMET, B., and M. ALOY. Biogas from Tannery Wastes (A) 285

WACHSMANN, H., E. HILZINGER, and B. MARTINELLI. Aniline Dyeing III. Influence of Various Substrates (A) 63
WADA, K. *See* ITO, K.
_____, *See* KUBO, T.
_____, *See* SHIRAI, K.
WALI, B., C. SINGH, and R. RAINA. A Safe Approach to Leather Processing (A) 243
WALTHER, W. Water as Solvent, Diluent or Vehicle for Dispersions in Leather Finishes for Top Coats: State of the Art and Recent Developments (A) 32
WARD, G. J. *See* HODDER, J. J.
WEIS, H. *See* BANKMANN, E.
WESTPHAL, J. Universally Applicable Liquid Metal Complex Dyestuffs (A) 395
WINKLER, R. *See* NOWAK, R.
WOLFF, J. and W. PAUCKNER. Comparative Study of Area Yield in the Manufacture of chrome Upper Leather in Various Vessels Used by the Industry (A) 125
WRIGHT, S. L. Relationship of Effluent Suspended Solids Values and Chromium Content in Activated Sludge Secondary Effluents 291

YAKUSHEVA, G. G. *See* MOTOV, D. L.
YAMAOKA, A. *See* ANDO, H.

YASHIMA, I. *See* TANIGUCHI, T.
YURA, Y., N. ISHIHARA, D. HOZAN, and S. MAEDA. Simple Testing Methods for Resistance of Finishing Coats of Leather to Organic Solvents (A) 66

ZAPFEL, H. Preparation of a Protein Meal and of Raw Fat from Machine Fleshings (A) 31
ZERVOS, P. *See* MANN, R.
ZHIGIANG, V. L., R. RENTERIA, and E. HEIDEMANN. A study of the Tension Caused by the Shrinkage of Drying Leather (A) 395

SUBJECT INDEX

Abrasion, resistance to, of finishes, hydrophobic lubricant effect on 64
Acrylic polymers
finishes, for base- and topcoating 34
in finishing of upper leather 392
graft, on casein, for glaze finishes 398
impregnation by, of upper leather 172
syntans, in retanning of cowhide uppers 122
Acrylonitrile
graft copolymers on casein 241
graft copolymers with butyl methacrylate or styrene on casein 394
graft polymerization of, on casein, for glaze finishes 398
Activated carbon
dye adsorption on 70
regeneration of, by steam, for wastewater treatment 239
Activated sludge
dye adsorption on 70
in wastewater treatment 239
Adenopus breviflorus, fruit, enzymes of, in unhairing 446
ADEWOYE, R. O., Biography 462
Adhesion
of finishes, fatliquor effect on 126
of finishes, hydrophobic lubricant effect on 64
Adsorbents, dye removal from wastewater by 119

Adsorption
of dyes on activated carbon 70
of dyes on activated sludge 70
ALCA
Analytical Methods Fellowship Announcement 169
Audit Report 225
Auditing Committee Report 314
Blaut Memorial Fellowship Announcement 168
Business Meeting Minutes 383
Call for Papers for 1985 Annual Meeting 410, 438, 464
Candidates for the 1984 Election 61
Committee Reports; See specific committees
Council Meeting Minutes 406
Directory Changes 117, 439
Education Committee Report 383
Effluent Committee Report 384
Hide Powder Committee Report 385
John Arthur Wilson Memorial Lecture Announcement 168
Methods Committee Report 383
Program for 1984 Annual Meeting 217
Proposed Change in Bylaws 167
Rawstock Committee Report 385
Research Liaison Committee Report 386
Specification Review Committee Report 387
Status of the Association 314
Aldehydes
condensation products with aromatic methylene sulfonic acids, for tanning 232
oligomers with phenol, pretreatment with, for titanium tanning 232
Alginic acid, graft copolymers with poly (glycidyl methacrylate), thermal properties of 443
Alkali, chrome complex structure change by 30
Alkyd resins, in finishing of upper leather 392
Alkylamidation, of collagen fibers, swelling in relation to 30
Aluminum alum, pretreatment with, for titanium tanning 232
Aluminum oxinate, as fungicide 443
Aluminum salts
in hide preservation 94
retanning with, tannin polymerization in 182
tanning with 72
Aluminum silicates, in chrome exhaustion improvement 412
Aluminum sulfate
in hide preservation 94

tanning with wattle extract and 444
in wet-white hide preparation 121
Alum, retanning with, of E. I. goatskins 120
Amides, in hide preservation 176
Aminoethylamidation, of collagen fibers, swelling in relation to 30
βAminopropionitrile, application of, on poly (vinyl alcohol) - induced granulomas 243
Ammonium titanyl sulfate, pretreatment with, for titanium tanning 232
Anogeissus schimperii, tannins in leaves of 242
Arachis hypogaea, nodulation of, tannin effect on 241
Area
of leather, tanning and finishing effect on 414
-mass relationship in lime split chrome side leather, model for 122
measurement of, of leather, thickness effect on 63
measurement of, of pickled and wet-blue hides 412
yield of chrome upper leather, vessel effect on 125
AUDET, NORMAN F., Biography 27
Automation of wet processes in rotating vessels 174

Bacteria halophilic, control of, in brine curing, by hexavalent chromium salts 104
BAILEY, MILTON, Biography 27
Bating, Decaltal ES ester in, for clean hides 174
Beamhouse, continuous automatic processing 370
BERNSTEIN, SUMNER Biography 27
BILES, J. J., Biography 58
Biomaterials, collagen as, for prosthetic and therapeutic uses 146
Biomedical materials, alginic acid-glycidyl methacrylate graft copolymers as 443
Book review
Bibliothek des Leders 62
Hide, Skin and Leather Defects: A Guide to their Microscopy 411
BUECHLER, PETER, R., Biography 435
Butyl methacrylate
graft copolymers in casein 241
graft copolymers with acrylonitrile on casein 394
graft polymerization of, on casein, for glaze finishes 398
p-tert-Butylphenol, in leather, dermatitis from 123

Cadmium oxinate, as fungicide 443
Calcium hypochlorite, hair protection by, in CSIRO unhairing process 444
Caprylic acid, glyceride synthesis from, by *Rhizopus nodosus* acid lipase 121
Carboxylic acids, in hide preservation 176

CARROLL, ROBERT J., Biography 436
Casein
acrylic monomer graft polymerization on, for glaze finishes 398
graft copolymers with acrylonitrile and butyl methacrylate and styrene 241, 394
Cattle, rumen contents of, as livestock feed supplement 119
Cellulose, azo dye affinity to 69
Cellulose ethers, in hide treatment 233
Chebulagic acid, in Marke leaves 242
Chebulinic acid, in Marke leaves 242
Chicks, feed for, proteins from unhairing liquors as 63
Chromatography
gel, of retanning agents 64
thin-layer, of retanning agents 68
Chrome
complexes, changes in structure of masked, by alkali 30
recovery of, from leather shavings and tanning wastewater 121
recovery of, from wastewater, by alkaline precipitation 233
stratigraphical distribution of, in leather, quadratic approximation of . 442
trivalent, in tannery wastes, effect on earthworms 207
in wastewater, suspended solids in relation to 291
Chrome tanning
aluminum salts in 72
bag-tanning combination with, for soccer ball leather 173
diffusion rate-uptake relationship in 174
exhaustion in, improvement of, by alkaline aluminum silicates 412
fixation and speed of penetration in 444
in presence of naphthalene syntan-treated myrobalans 120
Chromium (III), inhibition by, of germination of *Phaseolus mungo L* 172
Chromium salts, hexavalent, in halophilic bacteria control in brine curing . 104
Citrates, titanium sulfate masking with 393
Clarino, flammability of, for footwear uppers 16
Coating materials, polyurethanes for 233
Cobalt oxinate, as fungicide 443
Collagen
as biomaterial for prosthetic and therapeutic uses 146
in cosmetics 393
fibers, chrome-tanned, retanning effect on mechanical properties of ... 171
fibers, retanning agent affinity to 67
fibers, swelling of, alkylamidation effect on 30
fibrils, electron microscopy of, fixing and staining in 45
as food additive 132
as food ingredient generally recognized as safe 129

molecular species of, structure and functions of, review on 170
new uses of, symposium on 128
of pigskin, structure of 412
of sheepskin, dissolved by alkaline protease, isolation and characterization of 174
sponges from 238
Colorants, ecological and toxicological assessment of 441
Color difference
formula, in lightfastness testing 69
formula, modification of JPC79 414
Coloring, of hair and skin with tyrosyl derivatives 179
CONSTANTIN, JAMES M. Obituary 408
Copper oxinate, as fungicide 443
Coratyl G, sodium aluminum silicates, tanning with 126
Cosmetics, collagen in 393
COVINGTON, A.D., Biography 115
Curing
autolytic proteinase release in 394
brine, halophilic bacteria control in, by hexavalent chromium salts ... 104
Cuticle, removal of, from wool fibers 67
Cutting apparatus, for bending cuts for leather 231

DAHMS, MATTHEW, P., Biography 436
Decaltal ES, in bating, for clean hides 174
DEMORAIS, MARIA F., Biography 27
Dermatitis, from p-tert-butylphenol in leather 123
Diaryl ethers, sulfonic acids of, as syntans 124
Disulfodinaphthylmethane, sodium salt, pretreatment with, for titanium tanning 232
Drying
of leather, area yield in relation to 32
of leather, shrinkage in, tension from 395
of leather, tension from 396
Dyeing
of aniline leather, retanning effect on 63
of chrome leather, retanning of wet-blues in relation to 441
multi-colored 235
review on 67
of suede leather retanned with sodium silicate 240
Dyes
adsorption of, on activated carbon 70
adsorption of, on activated sludge 70
azo, affinity of, to cellulose 69

decomposition of, by ozone and ultraviolet light 441
ecological and toxicological assessment of 441
fading of, in presence of singlet oxygen 68, 69
leather color intensity, shade and brightness in relation to 175
membrane separation process for 234
metal complex, liquid 395
removal of, from wastewater, by adsorbents 119

Earthworms, trivalent chrome effect on, from tannery wastes 207
Ecology, danger to, of colorants, dyes, and pigments 441
Effluents. *See* Wastewater
Electron microscopy, of collagen fibrils, fixing and staining in 45
Ellagic acid, in Marke leaves 242
Enzymes
of *Adenopus breviflorus,* in unhairing 46
of pancreatic, pigskin hydrolysis by 64
Ethyl acetate, finish resistance to, tests for 66

Fatliquoring, chloroalkane sulfonamides in, for fire resistance and lightfastness 175
Fatliquors
finish adhesion in relation to 126
reactive group-contg 442
sperm oil determination in 392
Fats, from machine fleshings 31
Fatty acids, glyceride synthesis from, by *Rhizopus nodosus* acid lipase 121
FEAIRHELLER, STEPHEN H., Biography 435
Feed
cattle and sheep rumen contents as, for livestock 119
for chicks, proteins from unhairing liquors as 63
Fertilizer, proteins from unhairing liquors as 63
Fibers
collagen and leather, retanning agent affinity to 67
wool, cuticle removal from 67
Finishes
abrasion resistance and adhesion of, hydrophobic lubricant effect on .. 64
acrylic polymers, for base- and topcoating 34
adhesion of, fatliquor effect on 126
chlorinated rubber, for soccer ball leather 239
glaze, acrylic-casein graft copolymers as 398
identification of, by infrared spectrophotometry 244
peeling strength of, detn. of 31
polyurethanes for 233

solvent resistance of, tests for 66
synthetic polymers as 392
synthetic polymers as 393
water as solvent for 32
Finishing
area yield of leather in relation to 414
of E. I. goatskins with Xerof stickers 120
leather preparation for 393
with nitrocellulose, for water resistance 173
polymers in, review in 392
with polyurethane dispersions 123
review on 67
of upper leather 392
Fire resistance, of leather, chloroalkane sulfonamides in fatliquoring for ... 175
Fish skins, tanning of 176
Fixation, of collagen fibrils in electron microscopy 45
Flammability, of footwear upper materials from leather and leather substitutes 16
Flaying, of sheepskins, apparatus for 178
Fleshing, hide substance loss in 63
Fleshings, machine, fats and protein meal from 31
Flotation, simplified system for, for wastewater treatment 297
Fluorocarbons, oil- and waterproofing of leather by 32
Food
collagen as additive for 132
collagen as ingredient for, generally recognized as safe 129
Footwear, upper materials for, flammability of 16
Formaldehyde
reaction products with melamine, sodium bisulfite and urea, for tanning 234
syntans from oxazolidines and 395
Fungicides, metal oxinates as 443
Fungi, removal of, from hides, by isocyanuric acid or its salts 176
Furs
from exotic sheepskins, for garments 241
rabbit skins, soaking of, proteinases in 124

Gallic acid, in Marke leaves 242
Gentisic acid, in Marke leaves 242
Germination, of *Phaseolus mungo L*, inhibition of, by chromium (III) 172
Ghat-Bor extract, modification of, for tanning 121
Glutaraldehyde, hide binding of, swelling suppression by 65

Glycerides
hydrolysis of, by acid lipase of *Rhizopus nodosus*, specificity of 240
synthesis by *Rhizopus nodosus* acid lipase, from fatty acids and glycerol . 121
Ghycidyl methacrylate, graft copolymers with alginic acid, thermal properties of 443
Goatskin
aniline upper leather from E.I. 67
retanning and finishing of E.I. 120
upper leather manufacture from 119
wet-white, alum, upper leather from 243
Graft polymerization, of alginic acid on poly(glycidyl methacrylate) 443
Granulomas, poly(vinyl alcohol)-induced, application of β-aminopropionitrile on 243
Groundnut, nodulation of, tannin effect on 241

Hair
coloring of, with tyrosyl derivatives 179
human, keratin of, solubilization of, by reduction with 2-mercaptoethanol 30
parting of, on hides, apparatus for 235
protection of, by calcium hypochlorite, in CSIRO unhairing process .. 444
HANNIGAN, MARY V., Biography 435
Health hazards, of colorants, dyes, and pigments 441
Hexahydropyrimidines, as mothproofing agents 392
Hexamethylene, pretreatment with, for titanium tanning 232
Hexane, finish resistance to, tests for 66
Hide defects
hyperkeratosis, from psoroptic scabies 416
microscopy of, book review on 411
Hide substance, loss of, in hide and leather processing 63
Hides
area measurement of pickled and wet-blue 412
cutting machine for 180
fungi removal from, by isocyanuric acid or its salts 176
hair parting on, apparatus for 235
letting-out apparatus for cutting and sewing of 236
preservation of, amides, carboxylic acids and zinc salts in 176
preservation of, with aluminum salts 94
splitting in lime or blue, material and cost balance between 173
stippen on, origination during life of animal 126
treatment of, cellulose ethers in 233
wet processing of, in rotating vessels, automation of 174
wet-blue, retanning of 170

wet-blue, retanning of, tanning agent effect on 170
wet-blue, sorting of, control of 239
wet-white, using aluminum sulfate 121
HODDER, JAMES J., Biography 27
Hydrolysis
of chrome shavings by Penicillin SPS 125
of glycerides, by acid lipase of *Rhizopus nodosus*, specificity of 240
of pigskins, by pancreatic enzymes 64
Hydrotropic substances, in reptile leather manufacture 124
2(3-Hydroxyethyl-1, 3-oxazolidine), syntans from formaldehyde and 395
Hyperkeratosis, from psoroptic scabies 416

Impregnation
of leather, practical aspects of 395
of upper leather with acrylic polymers 172
Isocyanuric acid, in fungi removal from hides 176
Isophorone dicarbamoylsulfonate, tanning with 238
Ivermectin, hyperkeratosis response to, in psoroptic scabies infestation 416

Keratin, of human hair, solubilization of, by reduction with 2-mercaptoethanol 30
Kips, nappa garment leather from E. I. 119
KUPFERMAN, ZELIG, Biography 27

Lactate dehydrogenase, in tissues of *Sillago sihama* 240
LAKSHMINARAYANA, Y., Biography 404
Lead oxinate, as fungicide 443
Leather
aluminum-vegetable, acid resistance and thermal stability of 182
aniline goatskin upper, from E.I. goatskins 67
apparatus for bending cuts for 231
area measurement of, thickness effect on 63
area yield of, drying and softening effect on 32
army upper, water-repellent 121
p-tert butylphenol in, dermatitis from 123
chamois, manufacture of 175
chrome, retanning effect on properties of 243
chrome stratigraphical distribution in, quadratic approximation of ... 442
chrome upper, area yield of, vessel effect on 125
color intensity, shade and brightness of dyed, dyes and retanning in relation to 175
drumming apparatus for 177
dust seal, semi-chrome, from bag-tanned sole leather 120

encyclopedia of, book review on 62
fibers, retanning agent affinity to 67
for hockey leg guards and soccer balls, from bag-tanned splits 240
impregnation of, with polyurethanes 122
manufacture of, surfactants in 31
mass-area relationship in lime split chrome side, model for 122
moisture in, conditioning effect on 123
nappa garment, from E. I. kips 119
nappa, from papda sheepskins 241
non-allergic 124
reptile, manufacture of, hydrotropic substance in 124
shavings, chrome recovery from 121
shrunken grain, from bag-tanned cowhide 172
shrunken grain, from pigskins 175
side upper, tanning pretreatment trials on 6
soccer ball, from combination bag-chrome process 173
sperm oil determination in 392
splitting machine for 177
suede nappa garment, from rejection grade E. I. sheepskins 120
suede, for volley balls, from bag-tanned splits 443
tooling, from E.I. cow or buffalo hides 67
upholstery, from flour-tanned sheepskins 393
upper, from alum wet-white goatskins 243
upper, flammability of 16
upper, from goatskins 119
upper, water-resistant 125
wastes, hydrolysis of chrome shavings, by Penicillin SPS 125
white, aluminum tanning for 72
zug grain, manufacture of 241
Leather defects, microscopy of, book review on 411
Leather industry
machinery for, review on 67
safety in 243
Leather substitute
apparatus for bending cuts for 231
upper, flammability of 16
Leathergoods, small, review on 67
Levaderm, dyes, metal complex, liquid 395
Lightfastness
of chrome leather, retanning of wet-blues in relation to 441
of leather, chloroalkane sulfonamides in fatliquoring for 175
testing of, color difference formula in 69
Lignosulfonic acids, in pretreatment for titanium tanning 232

Lipase
acid, of *Rhizopus nodosus,* glyceride synthesis by 121
acid, of *Rhizopus nodosus,* hydrolysis by, glyceride specificity of 240
acid, of *Rhizopus nodosus,* purification and characterization of 66
Lubricants, hydrophobic, finish abrasion resistance and adhesion in relation to 64

Machinery, for leather industry, review on 67
Marke, tannins in leaves of 242
Mass, -area relationship in lime split chrome side leather, model for 122
Melamine, reaction products with formaldehyde, sodium bisulfite and urea, for tanning 234
MELLON, EDWARD, F., Obituary 60
2-Mercaptoethanol, solubilization by, of human hair keratin 30
Methyl ethyl ketone, finish resistance to, tests for 66
Methylene sulfonic acid, aromatic, condensation products with aldehydes, for tanning 232
Microscopy, of hide and leather defects, book review on 411
Model, for mass-area relationship in lime split chrome side leather 122
Moisture, in leather, conditioning effect on 123
Molecular species, of collagen, structure and functions of, review on 170
Molecular structure, of pigskin collagen 412
Mothproofing agents, hexahydropyrimidines and pyrethroids as 392
MOYNIHAN, FRED M., Obituary 391
Myrobalans
extract, wattle replacement by, in E.I. tanning 394
naphthalene syntan-treated, tanning with chrome and 120

Naphthalene syntan, myrobalans treated with, tanning with chrome and .. 120
Nickel oxinate, as fungicide 443
Nitrocellulose, waterproofing with 173
Nodulation, of groundnut, tannin effect on 241
Notes for contributors 2

Obituary
Constantin, James M. 408
Mellon, Edward F. 60
Moynihan, Fred M. 391
Williams, Paul E. 390
Oilproofing, of leather, with fluorocarbons 32
Oleic acid, glyceride synthesis from, by *Rhizopus nodosus* acid lipase 121
Oligophenyl groups, sulfonic acids of, as syntans 124
1,3-Oxazolidine, syntans from formaldehyde and 395

Oxazolidines, syntans from formaldehyde and 395
Oxinates, as fungicides 443
Oxygen, singlet, dye fading in presence of 68, 69
Ozone, dye decomposition by ultraviolet light and 441

PARTHASARATHY, K., Biography 404
Peeling strength, detn of, of leather finishes 31
Penicillin SPS, hydrolysis by, of chrome shavings 125
Permethrin, as mothproofing agent 392
Petroleum benzine, finish resistance to, tests for 66
Phaseolus mungo L, germination of, inhibition of, by chromium (III) 172
Phenol, oligomers with aldehydes, pretreatment with, for titanium tanning 232
Phthalic anhydride, pretreatment with, for titanium tanning 232
Pigments, ecological and toxicological assessment of 441
Pigskin
  collagen of, structure of 412
  hydrolysis of, by pancreatic enzymes 64
  upgrading of 175
Polishes, for leather and shoes, evaluation of 413
Poly(butyl acrylate), impregnation by, of upper leather 172
Polycarboxylic acids, in aluminum tanning 72
Poly(ethyl acrylate), impregnation by, of upper leather 172
Polymerization, of tannins, in retanning with aluminum salts 182
Polymers
  in finishing, review on 392
  synthetic, as finishes 392, 393
Poly(methyl acrylate), impregnation by, of upper leather 172
Poly(methyl methacrylate), impregnation by, of upper leather 172
Poly(vinyl alcohol), granulomas induced by, application of β-aminopropionitrile on 243
Poromerics, flammability of, for footwear uppers 16
Porvair, flammability of, for footwear uppers 16
Process control, of sorting of wet-blues hides 239
Prosthetics, collagen in 146
Proteinase
  autolytic, release of, in curing 394
  in soaking of rabbit skins 124
Proteins
  meal, from machine fleshings 31
  from unhairing liquors, as chick feed and fertilizers 63
Protocatechuic acid, in Marke leaves 242
Psoroptes ovis, scabies from, hyperkeratosis from 416
Pyrethroids, as mothproofing agents 392

Quadratic approximation, of stratigraphical chrome distribution 442

RAO, V. S. SUNDARA, Biography 271
REDDY, C. RAMI, Biography 404
REDDY, K. K., Biography 271
Rhizobium, toxicity to, of tannins 241
Rhizopus nodosus
  acid lipase of, glyceride synthesis by 121
  acid lipase of, hydrolysis by, glyceride specificity of 240
  acid lipase of, purification and characterization of 66
ROETS, SAREL D., Biography 312
Rubber, chlorinated, finishes for soccer ball leather 239
Rumen, cattle and sheep, contents of, as livestock feed supplement 119

Safety, in leather manufacture 243
Sal, tannins in seeds of 242
Scabies, psoroptic, hyperkeratosis from 416
Seals, dust, semi-chrome leather, from bag-tanned sole leather 120
Sharkskin, processing of, on fishing vessels, for export 119
Shaving, hide substance loss in 63
Sheep, rumen contents of, as livestock feed supplement 119
Sheepskin
  aluminum-chrome tanning of, for garment leather 72
  collagen of, dissolved by alkaline protease, isolation and characterization of 174
  flaying apparatus for 178
  flour-tanned, upholstery leather from 393
  furs from exotic, for garments 241
  papda, nappa leather from 241
  suede nappa garment leather from rejection grade E. I. 120
Shoes
  bonding of soles to uppers in 173
  fitting of, for foot comfort 120
  non-allergic leather for 124
  polishes for, evaluation of 413
  upper materials for, flammability of 16
Shorea robusta, tannins in seeds of 242
Shrinkage, of drying leather, tension from 395
Sillago sihama, lactate dehydrogenase in tissues of 240
Skin, coloring of, with tyrosyl derivatives 179
SMITH, R. A., Biography 115

Soaking
of rabbit skins, proteinases in 124
rapid, processing conditions in relation to 370
Sodium aluminum silicates, tanning with 126
Sodium bisulfite, reaction products with formaldehyde, melamine and urea, for tanning 234
Sodium silicate, retanning with, for suedes with better nap and improved dyeing 240
Softening, of leather, area yield in relation to 32
Solvents, finish resistance to, tests for 66
Sorting, of wet-blue hides, control of 239
Spectrophotometry, infrared, finish identification by 244
Sperm oil, determination of, in fatliquors and leather 392
SPINDOLA, KENNETH J., Biography 28
Splitting, hide substance loss in 63
Sponges, from collagen 238
Sporting goods
hockey leg guards and soccer balls, leather for 240
soccer balls, leather for, chlorinated rubber finishes for 239
soccer balls, leather for, from combination bag-chrome process 173
volley balls, suede leather for, from bag-tanned splits 443
Staining, of collagen fibrils in electron microscopy 45
Steam, in regeneration of activated carbon for wastewater treatment 239
Stippen, on cowhides, origination during life of animal 126
Styrene
graft copolymers on casein 241
graft copolymers with acrylonitrile on casein 394
graft polymerization of, on casein, for glaze finishes 398
Sulfonamides, of chloroalkanes, in fatliquoring, for fire resistance and lightfastness 175
Surfactants, in leather manufacture 31
Suspended solids, in wastewater, chrome content in relation to 291
SUTOH, MIEKO, Biography 58
Swelling
of collagen fibers, alkylamidation effect on 30
suppression of, by hide binding of retanning agents 65
SYKES, R. L., Biography 115
Symposium
on effluent 290
on new uses of collagen 128
Synthetic tanning materials
acrylic polymers, in retanning of cowhide uppers 122
aldehyde-aromatic methylene sulfonic acid condensation products 232

formaldehyde-melamine-sodium bisulfite-urea reaction products 234
oxazolidine-formaldehyde 395
for retanning, affinity of, to collagen and leather fibers 67
for retanning, gel chromatography of 64
for retanning, hide binding of, swelling suppression by 65
for retanning, thin-layer chromatography of 68
sulfonic acids of diarylethers and oligophenyl groups 124

TOYODA, HARUKAZU, Biography 58
Tagiri, fruit, enzymes of, in unhairing 446
Tanning
with aluminum salts 72
area yield of leather in relation to 414
bag-chrome combination, for soccer ball leather 173
chrome-naphthalene syntan-treated myrobalans combination 120
E.I., wattle replacement by myrobalans in 394
of fish skins 176
with isophorone dicarbamoylsulfonate 238
pretreatment, chrome and vegetable, for bag tanning 121
pretreatment process, tannery trials on side upper leather 6
process modification for pollution reduction in, wastewater from 172
re-, with aluminum salts, tannin polymerization in 182
re-, of aniline leather, dyeing in relation to 63
re-, of chrome collagen fibers, mechanical properties in relation to 171
re-, chrome leather properties in relation to 243
re-, of cowhide uppers with acrylic syntans 122
re-, of E. I. goatskins with alum 120
re-, leather color intensity, shade and brightness in relation to 175
re-, with sodium silicate, for suedes with better nap and improved dyeing 240
re-, of wet-blues, dyeing and lightfastness of chrome leather in relation to 441
re-, of wet-blue hides 170
re-, of wet-blues, tanning agent effect on 170
review on 67
with sodium aluminum silicates 126
with titanium salts, pretreatment for 232
with titanium salts, review on 242
with titanium sulfate, citrates as masking agents in 393
wattle-aluminum 444
Tanning materials
Ghat-Bor extracts, modification of 121
for retanning, affinity of, to collagen and leather fibers 67

for retanning, gel chromatography of 64
for retanning, hide binding of, swelling suppression by 65
for retanning, thin-layer chromatography of 68
Tannins
in Marke leaves 242
polymerization of, in retanning with aluminum salts 182
in sal seeds 242
toxicity of, to *Rhizobium* 241
Tension
from drying of leather 396
from shrinkage of drying leather 395
Textiles, cotton, laminates with suede leather, for volley balls 443
Titanium salts
tanning with, pretreatment for 232
tanning with, review on 242
Titanium sulfate, masking of, with citrates 393
Toluene, finish resistance to, tests for 66
Toxicity, of tannins to Rhizobium 241
Toxicology, of colorants, dyes, and pigments 441
Trimming, hide substance loss in 63
Tyrosyl derivatives, in coloring of hair and skin 179

UEHARA, KOHKICHI, Biography 58
Ultraviolet light, dye decomposition by ozone and 441
Unhairing
CSIRO process for, hair protection by calcium hypochlorite in 444
with enzymes of *Adenopus breviflorus* 446
hide substance loss in 63
liquors, proteins from, as chick feed and fertilizers 63
of pigskins, by immersion in hot water 175
rapid, processing conditions in relation to 370
Urea, reaction products with formaldehyde, melamine and sodium bisulfite, for tanning 234
Urethane polymers
for coating and finishing leather 233
dispersions, in leather finishing 123
in finishing of upper leather 392
leather impregnation with 122

Vessels, area yield of chrome upper leather in relation to 125

WARD, G. J., Biography 28
WILLIAMS, PAUL E., Obituary 390

WRIGHT, STEPHEN L., Biography 312
Washing, of hides, hide substance loss in 63
Wastes
chrome shavings, hydrolysis of, by Penicillin SPS 125
leather shavings, chrome recovery from 121
trivalent chrome in, effect on earthworms 207
Wastewater
suspended solids in, chrome contents in relation to 291
symposium on 290
from tanning process modification for pollution reduction 172
Wastewater treatment
activated carbon for, regeneration of, by steam 239
by activated sludge 239
activated sludge from, dye adsorption on 70
chrome recovery 121
dye decomposition, by ozone and ultraviolet light 441
dye removal, by adsorbents 119
dye removal, by adsorption on activated carbon 70
simplified flotation system for 297
Water, as solvent for leather finishes 32
Waterproofing
of leather, mechanism of 413
of leather, with fluorocarbons 32
with nitrocellulose 173
of upper leather 125
Wattle bark
extract, replacement of, by myrobalans, in E.I. tanning 394
extract, tanning with aluminum and 444
Wool, fibers, cuticle removal from 67

Zeolites, in chrome exhaustion improvement 412
Zinc oxinate, as fungicide 443
Zinc salts, in hide preservation 176

PATENT INDEX

U.S. Patent 4,379,708 176
U.S. Patent 4,379,709 176
U.S. Patent 4,380,159 177
U.S. Patent 4,381,655 180
U.S. Patent 4,384,464 231
U.S. Patent 4,390,339 176
U.S. Patent 4,390,340 232
U.S. Patent 4,390,341 179
U.S. Patent 4,391,109 177
U.S. Patent 4,392,274 178
U.S. Patent 4,396,387 232
U.S. Patent 4,398,911 233
U.S. Patent 4,401,573 233
U.S. Patent 4,401,801 233
U.S. Patent 4,402,701 234
U.S. Patent 4,403,993 234
U.S. Patent 4,409,803 235
U.S. Patent 4,410,330 235
U.S. Patent 4,412,947 238
U.S. Patent 4,413,997 238
U.S. Patent 4,416,125 236

ARTICLES FROM OTHER PUBLICATIONS

(Page numbers denote abstracts)

Das Leder 32, 63, 64, 122, 125, 126, 173, 174, 285, 286, 287, 444
Hikaku Kagaku 30, 31, 64, 65, 66, 67, 68, 170, 171, 243, 244, 441, 442
Journal of the Society of Dyers and Colourists ... 68, 69, 70, 119, 288, 368, 441
Leather Science (Madras) 66, 67, 119, 120, 121, 122, 172, 173, 239, 240, 241, 242, 243, 442, 443
Leder-und Hautemarkt, Gerbereiwissenschaft und Praxis 31, 32, 122 123, 124, 125, 174, 175, 239, 444
Review of Progress in Coloration and Related Topics 288, 368
The Tanner 243
Technicuir 284, 285